Fisheries and Oceans Canada | Pêches et Océans Canada
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Canadian Science Advisory Secretariat
Quebec Region | Science Response 2016/009

UPDATE OF INDICATORS OF THE STOCK STATUS OF THE NORTHERN GULF OF ST. LAWRENCE (3PN, 4RS) COD IN 2015

Context

The stock assessment of Cod (*Gadus morhua*) in the northern Gulf of St. Lawrence (3Pn, 4RS) is conducted every two years, with the most recent assessment completed in February 2015. In interim years, a summary review of the resource's main indicators is made in order to determine whether major changes in the stock status would warrant more in-depth study prior to the planned assessment in the winter of 2017. This update was prepared to provide Fisheries Management with an overview of the most recent stock status.

This Science Response Report results from the Regional Science Response Process from November 23, 2015 on the Stock Status Update of Cod in 3Pn4RS.

Analysis

Landings

The fishing season was still ongoing at the time of this update. On November 23, 2015, directed fishery preliminary landings of Cod was 1 201 t out of a potential allocation of 1 500 t (Figure 1). A recreational Cod fishery is also practiced for several weeks each year (periods varying by region), however, there is no estimate of the catches by this fishery.

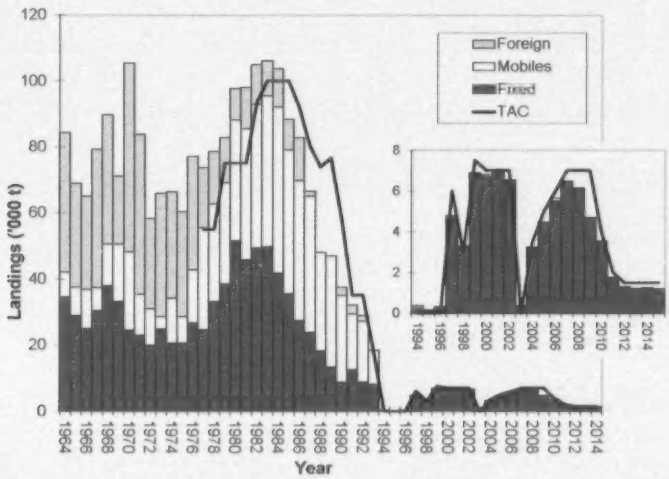

Figure 1. Annual landings and total allowable catch (TAC) by management year (1999: TAC from 1999/01/01 to 2000/05/14; 2000 to 2015: TAC from May 15 to May 14 of the following year).

Canada

Stock status indicators

DFO bottom trawl survey (4RS)

In 2014 and 2015, the average number per tow for Cod was above the historical average (Figure 2). The size frequency distribution in 2015 showed a wide range where abundances were higher than the historical average (Figure 3). Three year-class modes of fish below the commercial size were present: 17 cm (1 yr), 26 cm (2 yr) and 36 cm (3-4 yr). More and more Cod is being observed in 4S, especially around Anticosti Island (Figure 4).

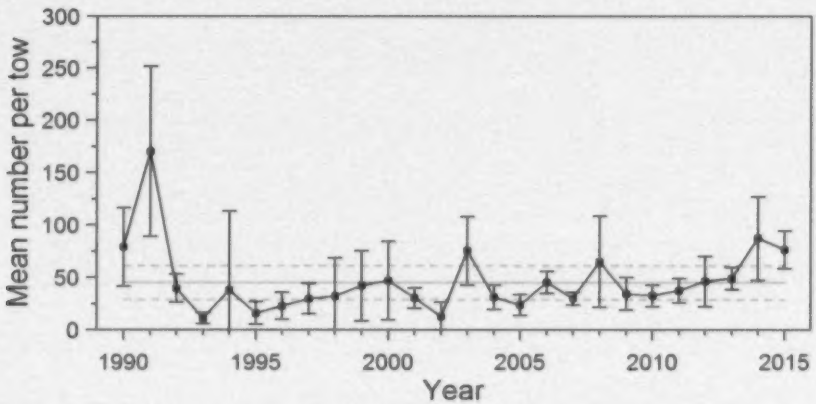

Figure 2. Mean number of Cod per 15-minutes tow observed during the DFO survey (4RS). The error bars indicate the 95% confidence interval. The solid horizontal lines indicate the 1990–2014 series average and the dotted lines indicate ± ½ standard deviation around the average.

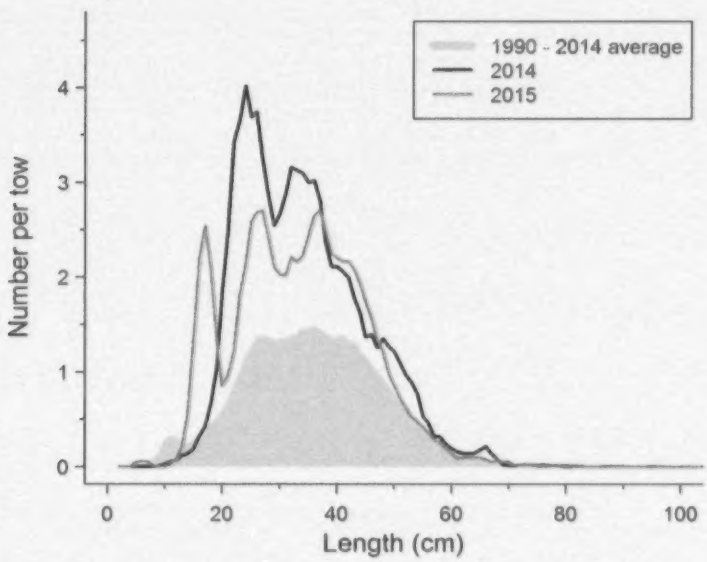

Figure 3. Length frequency distributions (mean number per 15 minutes tow) observed during the survey for Cod in 4RS.

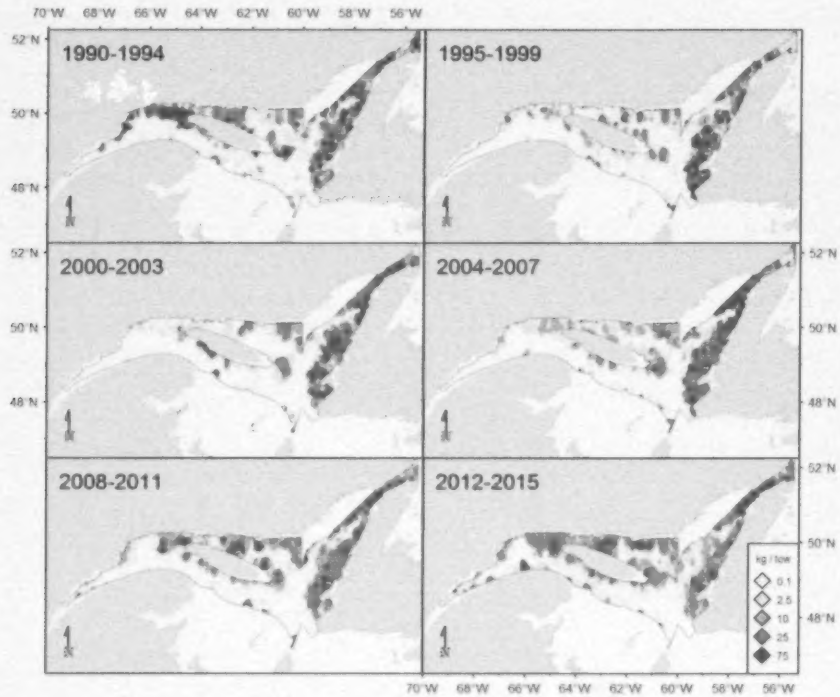

Figure 4. Distribution of Cod catch rates (kg/15 minute tow) in the DFO survey in 4RS

Mobile gear sentinel fishery (3Pn, 4RS)

The abundance index from the July bottom trawl sentinel survey has increased since 2012 (Figure 5). In 2014 and 2015, the average number per tow was greater than the series average for 2003-2014.

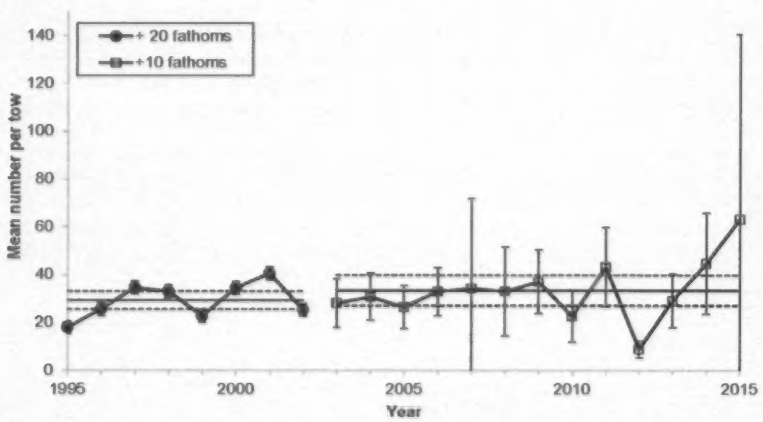

Figure 5. Mean number of Cod per 30-minute tow (±95% confidence interval) during the July mobile gear sentinel fisheries survey (1995–2002, 20 fathoms or more; 2003–2013: 10 fathoms or more). The solid lines represent the averages for each series and the dotted lines ±½ the standard deviation around the average.

Fixed gear sentinel fishery (3Pn, 4RS)

The fixed gear (gillnet and longline) sentinel program has 22 sites in 6 zones along the coast in 3Pn, 4R and 4S. Fishing activities in these areas are related to the migration of Cod. The catches per unit effort (CPUE) in 2015 are preliminary and include fishing activities that took place from January to October. In 2015, the CPUE for longlines increased, but remained near the average of the 1995-2014 series. The CPUE for gillnets also increased in 2015, with the highest level of the series from 1995 to 2014 (Figure 6).

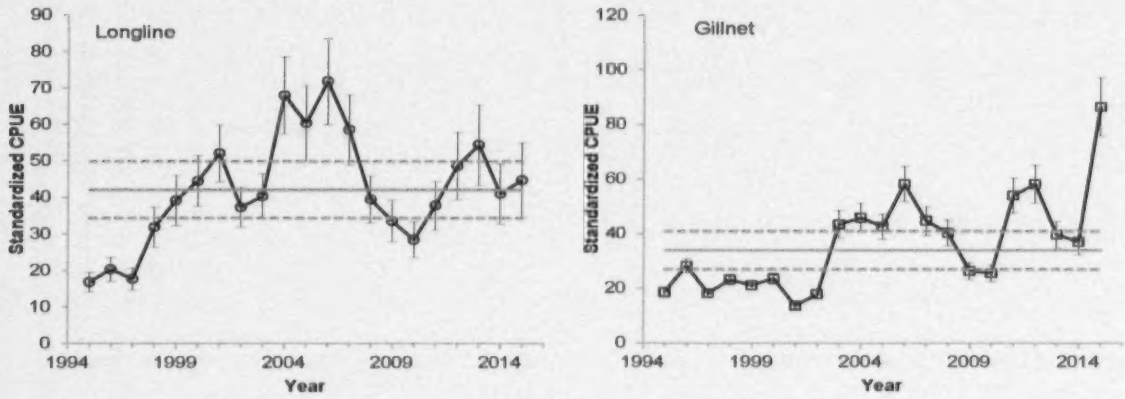

Figure 6. Standardized catch per unit effort (CPUE) for the fixed gear sentinel fisheries program (January to October). The solid line represents the 1995–2014 series average and the dotted lines ±½ the standard deviation around the average. The error bars indicate the 95% confidence interval.

Conclusions

In 2015, the indicators obtained from the DFO research survey and the sentinel fisheries program showed either stable trends or increased abundance of Cod in the northern Gulf of St. Lawrence. In addition, the values of these indices were at or above historical averages. This trend confirms the conclusion of the latest Scientific Advisory Report that an annual harvest of 1 500 t for 2015-2016 and 2016-2017 fishing season would increase the spawning stock biomass.

This update of the main indicators of the stock status of the Cod in the northern Gulf of St. Lawrence (3Pn, 4RS) showed no major changes compared to the assessment in February 2015, the latest scientific advice therefore remains valid for the next fishing season. The recovery of this stock remains a priority.

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Sources of information

This Science Response Report results from the Regional Science Response Process from November 23, 2015 on the Stock Status Update of Cod in 3Pn4RS.

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DFO. 2015. Assessment of the northern Gulf of St. Lawrence (3Pn, 4RS) Cod stock in 2014. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2015/041.

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